CANCER IN RHODE ISLAND

Cancer is a major cause of morbidity and mortality in Rhode Island, as it is in the United States as a whole. About four out of every 10 people in Rhode Island will develop cancer sometime in the course of their lives, and half of them will die of the disease. At any one time, it is estimated that over 33,000 Rhode Islanders are living with cancer or are cancer survivors. In 2003, an estimated 5,800 new cancer cases will be diagnosed, and an estimated 2,400 Rhode Islanders will die of the disease. (ACS Facts 2003) Cancer is the second leading cause of death in RI. According to data from 1995-1999, Rhode Island ranks 13th in highest overall cancer mortality rates among the 50 states and Washington D.C. (ACS Facts 2003)

Rhode Island cancer mortality, among the highest in the nation, displays an "urban profile." When the differential between RI and US rates is decomposed, it is found to be caused by cancers of a limited number of anatomical sites, including cancers in which diet is implicated and cancers related to tobacco use. Mortality rates from these cancers are elevated in urban areas throughout the developed world. Please see **Special Studies: Cancer in an Urban State** (section 14) for more information.

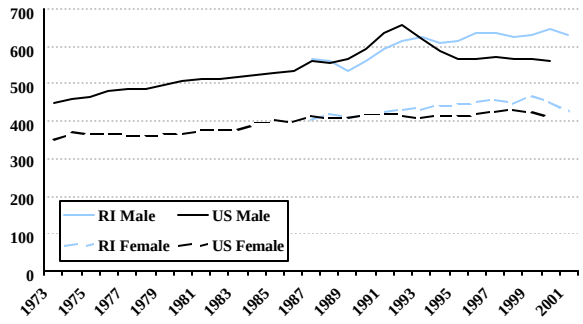
Working from American Cancer Society estimates for the nation as a whole, and prorating them on the basis of total population, cancer costs RI about $545 million per year, about $196 million in direct medical costs, and about $349 million in lost productivity from illness and death. (ACS Facts 2002)

Cancer Trends

Over the past decade, the incidence of all cancers combined increased among Rhode Island men. Among Rhode Island women, cancer incidence increased for most of the 1990's but has decreased in recent years. The increase in cancer incidence rates can be partly attributed to the development and use of cancer screening techniques which are effective in finding cancerous lesions at early stages.

RI has experienced higher rates of cancer mortality than the nation over a period of at least five decades. Although this continued into the 1990s, the difference between RI and US cancer mortality rates, among both males and females, has gotten smaller over time.

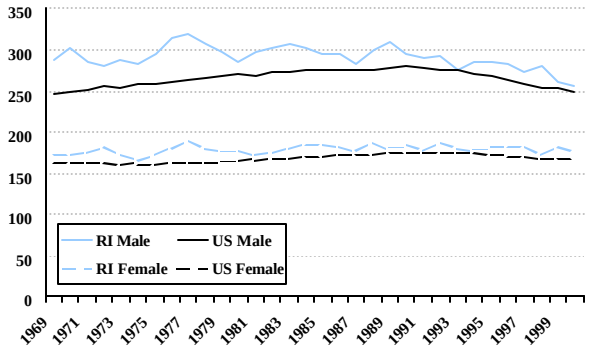
Figure 5-1. Cancer incidence for all cancers combined by year and sex
Annual invasive cancer incidence rates** by sex for all cancers combined, RI and US, 1973-2001.*



* Invasive includes the following stages of disease at diagnosis: local, regional, distant, and unknown.
** Rates are age-adjusted to the year 2000 US population, expressed as cases per 100,000 population.
Source: RICR, HEALTH; SEER Public-Use 1973-2000 Data; calculated with *SEER*Stat*.

Overall cancer incidence rates among RI males increased from 566.4 cases per 100,000 in 1987 to 633.7 in 2001. Among RI females, rates increased from 407.1 cases per 100,000 in 1987 to 470.3 in 1999, then decreased to 428.6 in 2001. Overall cancer incidence rates among US males increased from 448.5 cases per 100,000 in 1973 to 656.8 in 1992, then decreased to 560.2 in 2000. Among US females, rates increased from 349.5 cases per 100,000 in 1973 to 413.8 in 2000.

Figure 5-2. Cancer mortality by year and sex for all cancers combined
Annual cancer mortality rates by sex for all cancers combined, RI and US, 1969-2000.*



* Rates are age-adjusted to the 2000 US standard population, expressed as deaths per 100,000 population.
Source: Office of Vital Records, HEALTH; SEER US Mortality 1969-2000 Data; calculated with *SEER*Stat*.

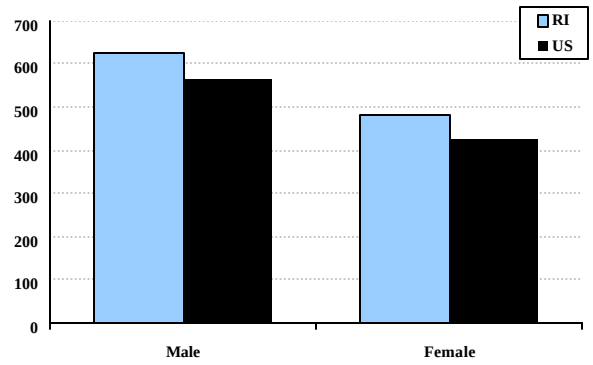
Overall cancer mortality rates among RI males hovered around 300 deaths per 100,00 from 1969 to 1996. In 1998-2000, rates were the lowest they have been since 1969. Among RI females, rates hovered around 180 deaths per 100,000 from 1969 to 2000. Overall cancer mortality rates among US males increased from 247.6 deaths per 100,000 in 1969 to 279.8 in 1990 then returned to 249.8 in 2000. Among US females, rates increased from 163.2 deaths per 100,000 in 1969 to 175.3 in 1991 then decreased to 167.3 in 2000.

Cancer Disparities

Cancer by sex

Differentials in cancer rates by sex are expected. They can be related to internal factors that differ between males and females, such as reproductive systems, or to external factors, such as historical lifestyle differences (i.e., occupational exposures to carcinogens, historical trends in smoking). For this reason, all rates presented in this report have been calculated as sex-specific rates. In both Rhode Island and the nation as a whole, the burden of cancer is higher among men than women. This disparity is largely attributable to cancers of the colon-rectum, lung-bronchus, and urinary bladder.

Figure 5-3. Cancer incidence by sex for all cancers combined
Cancer incidence rates by sex for all cancers combined, RI and US, 1996 -2000.*

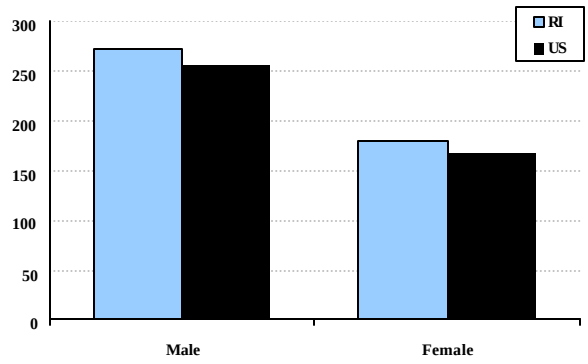


* Rates are age-adjusted to the 2000 US standard population, expressed as cases per 100,000 population.
Source: RICR, HEALTH; SEER Public-Use 1973 -2000 Data; calculated with *SEER*Stat*.

In both RI and the US, overall cancer incidence rates are higher among males than females. In RI, the male incidence rate for all cancers combined is 30% higher than the female rate. A similar disparity is seen in the US rates. RI rates are higher than US rates for both males and females.

[Note: RI incidence data for 2001 is currently available. US incidence data is only available through 2000. For comparability, the figure at left contains RI data through 2000.]

Figure 5-4. Cancer mortality by sex for all cancers combined
Cancer mortality rates by sex for all cancers combined, RI and US, 1996-2000.*



* Rates are age-adjusted to the 2000 US standard population, expressed as deaths per 100,000 population.
Source: Office of Vital Records, HEALTH; SEER US Mortality 1969-2000 Data; calculated with *SEER*Stat*.

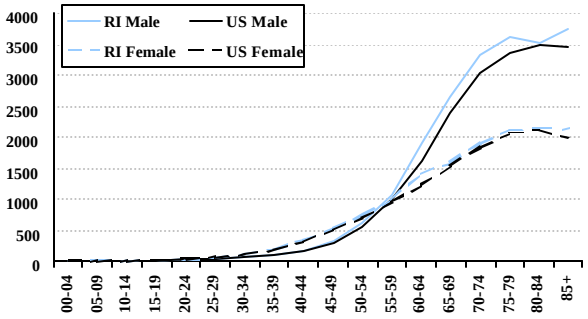
In both RI and the US, cancer mortality rates are higher among males than females. In RI, the male cancer rate for all sites combined is 51% higher than the female rate. A similar disparity is seen in the US rates, although RI rates are higher than US rates for both males and females.

Cancer by age and sex

Cancer differentials by age are expected. Due to both internal factors, such as normal aging processes, and external factors, such as exposure to carcinogens, cancer is largely a disease of age. With a population that is both growing and aging, even if cancer rates remain stable, the number of people diagnosed with cancer is expected to increase. (Age) Researchers anticipate that if cancer rates follow current patterns, between 2000 and 2050, the number of people diagnosed with cancer in the US will double. (Age)

Careful consideration must be taken when comparing populations with different age distributions. As discussed in **About the Data** (section 3), age-adjustment of rates eliminates the effect of different age distributions in different populations. For this reason, all rates presented in this report are age-adjusted.

Figure 5-5. Cancer incidence by age and sex for all cancers combined
Invasive cancer incidence rates** by age and sex for all cancers combined, RI and US, 1996-2000.*

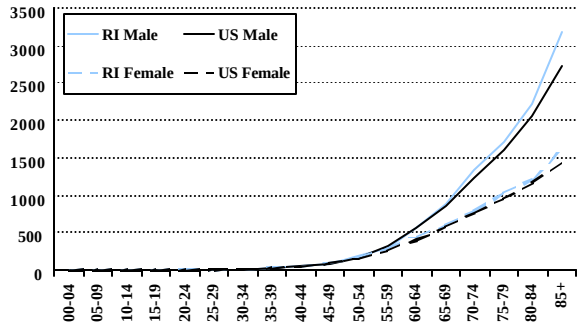


* Invasive includes the following stages of disease at diagnosis: local, regional, distant, and unknown.
** Rates are age-specific, expressed as cases per 100,000 population.
Source: RICR, HEALTH; SEER Public-Use 1973-2000 Data; calculated with *SEER*Stat*.

Age-specific cancer incidence rates show that deaths from cancer increase dramatically with age. Cancer incidence is disproportionately higher among males than females.

[Note: RI incidence data for 2001 is currently available. US incidence data is only available through 2000. For comparability, the figure at left contains RI data through 2000.]

Figure 5-6. Cancer mortality by age and sex for all cancers combined
Cancer mortality rates by age and sex for all cancers combined, RI and US, 1996-2000.*



* Rates are age-specific, expressed as deaths per 100,000 population.
Source: SEER Incidence and US Mortality Statistics, NCHS

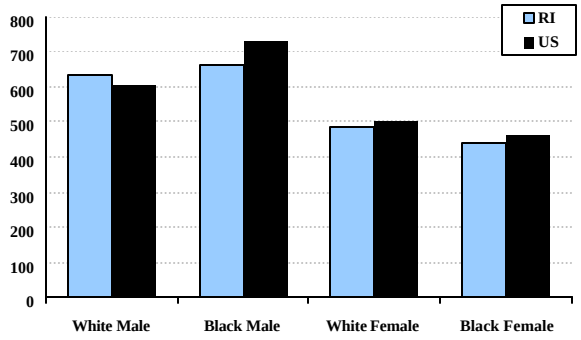
Age-specific cancer mortality rates show that deaths from cancer increase dramatically with age. The burden of cancer death is disproportionately higher among males than females.

Cancer by race and sex

Even though incidence rates from all cancers combined are higher among white females than black females, mortality rates from all cancers combined are higher among blacks than whites in RI. With few unproven exceptions, there is no expected internal or genetic reason for this racial differential. Cancer prevention and control efforts may not have effectively reached minority populations. Several factors may be involved, such as late stage of disease at diagnosis, health care access, disease history, genetic differences, survivorship, risk factors, and health behaviors. (Race) This report addresses racial differentials because they may indicate a failure of public health or health care systems.

Due to the small numbers of cases and deaths when stratifying RI data by race, sex, and year, this report provides data by race and sex for the combined years 1987-2000. This format is used throughout the report for cancers of individual anatomical sites by race.

Figure 5-7. Cancer incidence by race and sex for all cancers combined
Average annual cancer incidence rates by race and sex for all cancers combined, RI and US, 1987-2000.*



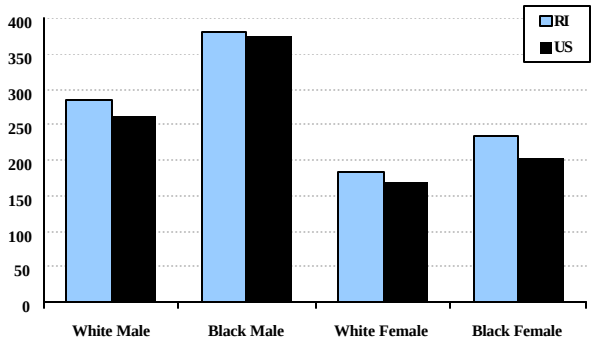
* Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.
Source: RICR, HEALTH; SEER Public-Use 1973-2000 Data; calculated with *SEER*Stat*.

Among RI males, cancer incidence rates are slightly higher among blacks than whites. This disparity is larger in the US than in RI. Among females, both in RI and the US, cancer incidence rates for white population are slightly higher than among the black population. RI rates are slightly lower than US rates, except among white males.

[Note: RI incidence data for 2001 is currently available. US incidence data is only available through 2000. For comparability, the figure at left contains RI data through 2000.]

Figure 5-8. Cancer mortality by race and sex for all cancers combined

Average annual cancer mortality rates by race and sex for all cancers combined, RI and US, 1987-2000.*



* Rates are age adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population.
Source: Office of Vital Records, HEALTH; SEER US Mortality 1969-2000 Data; calculated with *SEER*Stat*.

Among RI males and US males, cancer mortality is higher among blacks than whites. This disparity is larger in the US than in RI. Among females in RI and the US, cancer mortality rates among the black population are higher than among the white population. RI rates are slightly higher than US rates for whites and blacks of both sexes.

Note: Please see **Appendix: Rhode Island Cancer Rates, 1997-2001 – Detailed Tables** (section 18) for more detailed tables of cancer by sex, race, site, and county.

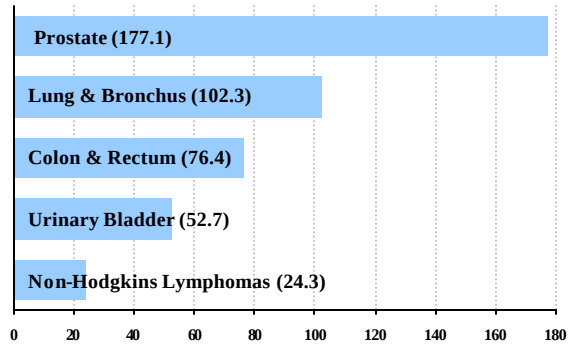
Common Cancers

In 2003, an estimated 5,800 cancer cases will be diagnosed in RI. The four leading cancer diagnoses are cancers of the prostate (estimated 900 new cases), lung and bronchus (800 new cases), female breast (800 new cases), and colon and rectum (700 new cases). (ACS Facts 2003) Leading cancer sites differ for males and females.

In 2003, an estimated 2,400 Rhode Islanders will die of cancer. The four most deadly cancers in RI are cancers of the lung and bronchus (700 estimated new deaths), colon and rectum (300 estimated new deaths), female breast (200 estimated new deaths), and prostate (100 estimated new deaths). (ACS Facts 2003) Leading causes of cancer death differ for males and females.

Figure 5-9. Leading male cancer sites

Cancer incidence rates among males, RI, 1997-2001.*

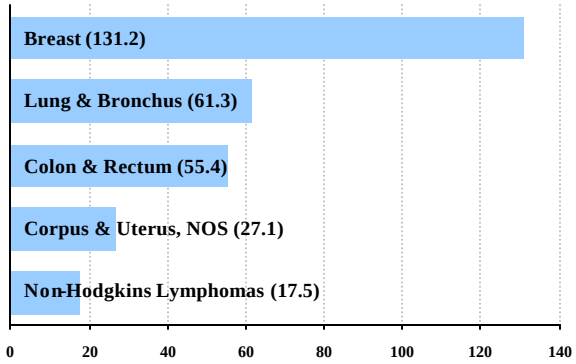


* Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.
Source: RICR, HEALTH; calculated with *SEER*Stat*.

Among RI males, cancer incidence rates are highest for cancers of the following sites: prostate; lung and bronchus; colon and rectum; urinary bladder; and non-Hodgkins lymphomas.

Figure 5-10. Leading female cancer sites

Cancer incidence rates among females, RI, 1997-2001.*

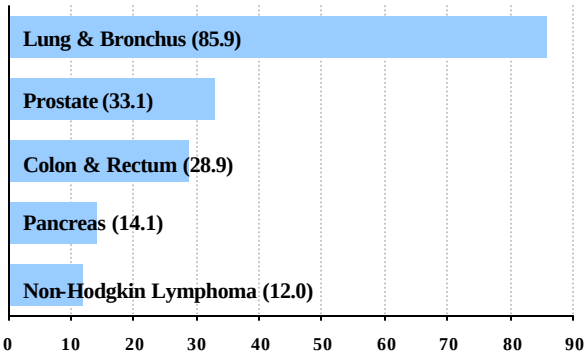


* Rates are age-adjusted to the year 2000 US standard population, expressed as cases per 100,000 population.
Source: RICR, HEALTH; calculated with *SEER*Stat.*

Among RI females, cancer incidence rates are highest for cancer of the following sites: breast; lung and bronchus; colon and rectum; corpus and uterus, not otherwise specified; and non-Hodgkins lymphomas.

Figure 5-11. Leading male cancer deaths

Cancer mortality rates among males, RI, 1996-2000.*

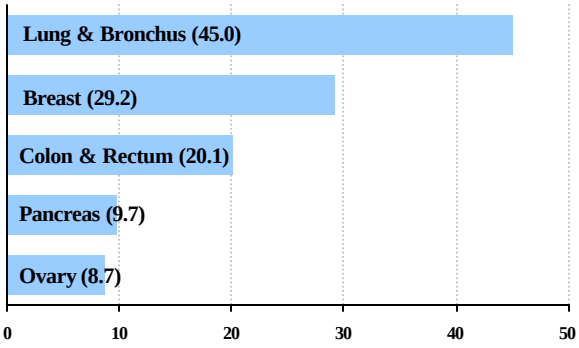


* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population..
Source: Office of Vital Records, HEALTH; calculated with *SEER*Stat.*

Among RI males, cancer mortality rates are highest for cancers of the following sites: lung and bronchus; prostate; colon and rectum; pancreas; and non-Hodgkins lymphomas.

Figure 5-12. Leading female cancer deaths

Cancer mortality rates among females, RI, 1996-2000.*



* Rates are age-adjusted to the year 2000 US standard population, expressed as deaths per 100,000 population.
Source: Office of Vital Records, HEALTH; calculated with *SEER*Stat.*

Among RI females, cancer mortality rates are highest for cancers of the following sites: lung and bronchus; breast; colon and rectum; pancreas; and ovary.